## AMENDMENTS TO THE SPECIFICATION

Please amend the paragraph beginning on page 12, line 31, as follows:

The processor 26 may be the same processor used to control switching of transistors in the DC to DC converter 22 and the DC to AC ~~converter~~ inverter 24, for example, and programs for controlling the DC to DC converter 22 and DC to AC ~~converter~~ inverter 24 may be stored in the program memory 42. In addition, the program memory 42 may be programmed with codes for directing the processor 26 to carry out methods according to various embodiments and aspects of the embodiment of the invention as described herein. In particular, these codes may cause the processor 26 to implement control routines described by way of the flowcharts, tables and graphs shown in Figures 5-11B [[,]] to effect the functionality of the methods according to this embodiment of the invention.

Please amend the paragraph beginning on page 16, line 29, provided in applicant's Preliminary Amendment filed on March 9, 2005, as follows:

Referring back to Figure 8, when the processor 26 calls the more power routine as shown at block 90, the more power routine shown at 100 in Figure 9A is executed. Generally, the more power routine 100 begins with a first block 102 that causes the processor 26 to determine whether or not the array voltage $V_k$ is greater than the sum of the MPPT_ref voltage and a predefined value, for example, 2.0 volts. When the array voltage $V_k$ is more than 2.0 volts above the MPPT_ref voltage, block 104 directs the processor 26 to set a power step variable according to ~~Table 24~~ Table A shown in Figure 9B. Use of this table involves using the presently measured AC load power value as an index to the table to determine which of a plurality of power ranges, the present AC load power value falls into. If the AC load power value is between zero and 40 volts, for example, the power step value is set to 4 watts. If the AC load power is



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between 800 watts and the maximum power available, the power step value is set to 24 watts, for example. In general, progressively larger AC load power ranges are associated with progressively larger power step values.

Please amend the paragraph beginning on page 23, line 27, as follows:

After completion of the MPPT routine shown in Figure 11A, the processor 26 is directed back to block 82 of Figure 5. Block 82 directs the processor 26 to set the loop value for the loop timeout test at block 80 as a function of [[he]] <u>the</u> power supplied to the load. In this embodiment, setting of the loop value is done according to the formula (2560/(AC_power + 1) subject to upper and lower bounds which in this embodiment are 60 and 3 respectively. When the dynamic loop value is 60 for example, the loop time out and hence the regulate routine will be run every second and when the dynamic loop value is 3, for example, the loop time out and hence the regulate routine will occur approximately every 50 milliseconds, or 20 times per second. The loop value is dependent upon the AC power and as the AC power increases, the loop value decreases causing the loop time out to occur more frequently. Similarly, as AC power decreases, loop time out occurs less frequently. When the amount of power supplied to the AC load is low, capacitors in the DC to DC converter and in the DC to AC ~~converter~~ <u>inverter</u> are the source of power for any increases in power and thus any increase in load measured at the array will be delayed. Consequently, it is desirable to cause the loop timeout to occur more frequently so that the processor can react more quickly to increases in the AC load. When operating at high power levels, the capacitors are being drained more quickly and thus, changes in load are more readily seen by the processor and therefore more frequent loop timeouts serve no useful purpose. Thus, at high power levels the loop timeout value can be high resulting in less frequent monitoring by the processor circuit. The specific formula for calculating the loop value is



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appropriate for the Suntie® inverter and it will be appreciated that in other systems employing different capacitors, the formula may be different with the general goal of enabling the processor circuit to respond less frequently at low AC power levels and more frequently at high power levels.

Please amend the paragraph on page 25, line 21, as follows:

In general where switching power supplies are used in conjunction with an energy converter, such devices have little tolerance for being on the negative side of the MPPT_ref point and are subject to collapse. Therefore the control methods and apparatus described herein attempt to keep the energy converter voltage on the positive side of the MPPT_ref point. Furthermore, in the specific application described herein DC to DC switching power supplies driving DC to AC inverters generally do not act in a linear manner to changes in power imposed by the DC to AC ~~converter~~ inverter, especially due to power storage in each device. Thus, the methods and apparatus described herein attempt to observe trends in power and voltages to ensure more reliable operation and set changes in the amount of power drawn from the energy converter on the basis of power supplied to the load rather than power drawn from the energy converter to enable these control methods to be used in DC to AC energy conversion applications.



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